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Influence of Nicotine and Related Drugs on the Uptake, Storage, Release and Turnover of Catecholamines in Central and Peripheral Tissue. Grant #467-A

The present experiments are an extension of previous work which indicates that nicotine and related drugs produce some of their cardiovascular and central effects through adrenergic mechanisms. The present studies will take into consideration the dynamic aspects of norepinephrine (NE) storage in peripheral and adrenergic neurones. The influence of drugs on NE turnover will be carried out by 3 methods:

(1) By following the decline in specific activity of labeled NE from the heart following the IV administration of NE.

(2) By measuring the disappearance of endogenous NE following inhibition of synthesis by tyrosine hydroxylase inhibitors.

(3) By measuring the conversion of labeled precursors, such as tyrosine and dopa, to NE.

These studies will be performed on the perfused guinea pig and rat heart. Labeled NE will be perfused in the absence or presence of nicotine and related drugs. Studies on the effect of nicotine on the uptake and turnover of NE in central tissue will be carried out following the direct application of labeled NE into the lateral ventricles of rats.

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